Motivation toward dual-career of Italian student-athletes enrolled in different university paths

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Running head: Motivation toward Dual-career in Italy.

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Abstract

The present study aimed to investigate motivations for the dual-career of Italian student-athletes attending different university courses. For this purpose, the Italian Harmonized version of the Student-athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ-IT/A) was administered to 760 Italian student-athletes. Exploratory Factor Analysis (EFA) and Cronbach's alpha coefficients were applied to test the factor structure and the reliability of the SAMSAQ-IT/A, respectively. Furthermore, the Confirmatory Factor Analysis (CFA) assessed the fit of the model. A multivariate approach was applied to verify subgroups effects ($P \leq 0.05$) in relation to gender (i.e., female, male), competition level (i.e., elite, sub-elite), type of sport (i.e., individual sport, team sport, disciplines performed both as individual and team), educational area (i.e., economical/law, humanistic, mathematics/engineering, medical, movement/sport sciences), and year of attendance (i.e., Bachelor 1st, 2nd, 3rd year, Master degree 1st and 2nd year, off course). EFA highlighted a three factor model (i.e., Sport Motivation, SM; Academic Motivation, AM; Dual Career Motivation, CM) with acceptable reliability estimates (SM=0.93; AM=0.85; CM=0.90) and good CFA indexes. Furthermore, differences between subgroups were found for gender (SM, P=0.02; AM, P=0.007), type of sport (AM, P=0.039), competition level (SM, P<0.001; CM, P=0.004), educational area (SM, P=0.003; AM, P=0.001; CM, P<0.001), and year of attendance (AM, P=0.005; CM, P=0.002). In conclusion, SAMSAQ-IT/A demonstrated to be a useful tool and results showed that Italian student-athletes' motivation for dual-career has to be specifically investigate according to gender, age, competition level, type of sport, educational area, and year of attendance.

Key words: SAMSAQ-IT/A; validity; athletic career.

Introduction

Dual career is an emerging research area [1], which represents a crucial area for the European strategy on sport [2]. However, difficulties in ensuring an adequate holistic development of European elite and talented athletes continue to persist [3, 4]. In fact, the achievement of the athletic excellence usually necessitates around 20-30 $h \cdot week^{1}$ dedicated to sports training and competitions, whereas the attaining of a satisfactory academic career requires of 30 $h \cdot week^{-1}$ of studying [5]. In addition, considering that youth athletes start competing around 8 years of age, a minimum of 10-year experience is required to achieve elite performance, and additional 5-10 years are needed to compete at the highest level [6]. Thus, talented athletes unavoidably are challenged in linking their sport and educational careers [7, 8], determining an overlapping of the talent selection with respect to the higher education [9].

Although Northern American and United Arab Emirates student-athletes sport and educational systems are effectively organized to support student-athletes in achieving their academic and sport goals, they frequently struggle to meet the requirements for the academic eligibility due to of a higher motivation toward the athletic success with respect to the academic one [10–12]. On the contrary, in Europe, the relationships between sport and educational systems are not still well established [3], favouring talented athletes' sport dropout to prioritize education to prepare for future job opportunities [13, 14] or to postpone (i.e., >24 years of age) the achievement of a degree. In this framework, among European countries, Italy was classified [15] into the laisser-faire/no formal structure category, which is characterized by the absence of support policies toward student-athletes' dual career, determining the need of individual negotiations between athletes and the teaching staff for a flexible academic path. Although several universities have implemented their dual career structures and/or established agreements with national sports federations [4], interventions are still restricted to a particular academic/sports environment and involving only a limited number of elite athletes at national level. Therefore, the European Commission promoted the establishment of support guidelines for student-athletes' dual career [16] and envisioned a better

understanding and monitoring of the career development of elite athletes to provide pertinent and effective interventions [2]. In particular, a valid and reliable quantitative approach for evaluating sport and academic orientations by means of a psychological perspective emerged as needful [1, 17]. For this purpose, the knowledge of the student-athletes' motivation in relation to different individual characteristics (such as gender, type of sport, competition level, educational path, and year of attendance) could improve the awareness of their sport and academic prospects.

To understand the student-athletes' academic and athletic motivations, the original 30-item Student-athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ) [11] has been validated in American student-athletes competing into the Division I of NCAA. The instrument consists of a three-factor structure, representing motivation toward elite sport (i.e., Student Athletic Motivation; SAM), motivation toward academic related tasks (i.e., Academic Motivation; AM), and motivation to pursue a professional sport career (i.e., Career Athletic Motivation; CAM), respectively. In particular, the SAM and CAM factors refer to motivations toward the desire to fulfil the current and perspective sport careers, respectively, whereas AM refers to motivations to accomplish an academic degree [11]. Findings highlighted that SAMSAQ is a valuable psychometric tool to monitor American student-athletes' motivations [11, 18, 19], also highlighting that the two "athletic" motivational factors (i.e., SAM and CAM) were mainly considered by male student-athletes with respect to female, whereas the opposite picture emerged in considering the "academic" factor (i.e., AM). However, it has been applied [10, 20] or recommended [21] in other national contexts. In Europe, student-athletes' motivations were investigated in different socio-cultural contexts [22 – 26]. In particular, the validity of the original SAMSAQ has been tested in a sample of female and male Italian student-athletes (i.e., SAMSAQ-IT) of different competition levels (i.e., county, regional, and national) and enrolled in Italian Sport Science degree courses [12]. Although the model maintained a three factor-structure (i.e., Cronbach's alpha coefficients ranging from 0.70 to 0.84), the factor loadings of each subscale diverged from the American version. Furthermore, nine items were removed due to low item-to-

total correlations, low reliability, and low factor loading, highlighting the potential impact of a specific socio-cultural system on the factor structure of this psychometric tool. Therefore, an Italian harmonized version of the SAMSAQ (i.e., SAMSAQ-IT/A) has been developed [23] including 21 items from the original SAMSAQ and 9 rephrased items as substitutes of those eliminated in the validation study [23]. Also in this case, the tool was administered to Italian student-athletes enrolled in Sport Science degree courses. In particular, SAMSAQ-IT/A showed a new and reliable structure which considers four different subscales focused on academic, athletic, athletic career, and sport career, respectively [23]. However, a limitation of these studies is represented by the enrolment of subjects in a sport related academic path, which could have affected results. In fact, a different factor structure could be expected administering the tool to student-athletes attending other university degree courses which calls for further research in this area.

At European level, two studies [25, 26] applied a cross-National approach to investigate motivations toward the dual-career of English, French, Italian, Portuguese, Swedish, and Slovenian student-athletes, also in relation to the dual career policy in place. In particular, to provide a comprehensive picture of student-athletes' living in different European socio-cultural environments, the SAMSAQ-EU was developed included both the 30 items of the original SAMSAQ and the 9 items of the Italian harmonized version. Although both studies showed a three-factor model with an academic, a sport, and a career motivation subscale, results confirmed the influence of socio-cultural contexts in determining the psychometric properties of the SAMSAQ, with factor structures presenting relevant discrepancies between/among the different versions of the questionnaire.

In considering the lack of studies focused on the investigation of motivations of Italian student-athletes enrolled in heterogeneous university degree courses [22, 23] and need to identify valid and reliable tools to monitor the student-athletes' dual career path [11], the aims of the present study were: 1) to validate the SAMSAQ-IT/A in Italian student-athletes enrolled in different university courses; 2) to verify differences between Italian student-athletes in relation to their gender, type of sport, competition level, educational area, and year of attendance. In particular, it

has been hypothesized that: i) based on previous findings [23], SAMSAQ-IT/A would show a valid four factor model for the whole sample of Italian student-athletes enrolled in different university courses; ii) motivation levels toward dual-career would vary in relation to gender (i.e., female, male), competition level (i.e., sub-elite, elite), type of sport (i.e., individual sport, team sport), educational area (i.e., economical/law, humanistic, mathematics/engineering, medical, movement/sport sciences), and year of attendance (i.e., Bachelor 1st, 2nd, 3rd year, Master degree 1st and 2nd year, off course).

Methods

Instrumentation and Procedure

The local Institutional Review Board approved this study to validate the SAMSAQ-IT/A in Italian student-athletes enrolled in different university courses and to verify differences between Italian student-athletes in relation to their gender, type of sport, competition level, educational area, and year of attendance.

All participants to the study were contacted by e-mail, providing information regarding the aim of the study, asking them to provide their consent to participate in the study before responding to an on-line questionnaire. In particular, participants were ensured that there were no right or wrong answers. The anonymous nature of the responses and the possibility for participants to interrupt their participation at any time were also provided, and respondents fully agreed to take part to the survey only after submitting the entire questionnaire at end of the web procedure. No compensation or tangible incentive was provided to participants for filling in the questionnaire.

According to a previous study on the motivations of student-athletes enrolled in Sport Science degree courses [23], participants individually completed the 30-item SAMSAQ-IT/A, indicating their level of agreement (i.e., from a minimum of 1 - strongly disagree, to a maximum of 6 - strongly agree) with the statements. General information (i.e., gender, type of discipline, competition level, educational path, and year of attendance) were also collected at the beginning of the survey.

Participants

To participate in the study, the following inclusion criteria for student-athletes were considered: 1) being enrolled in a University course at the University of Torino; and 2) currently competing at sub-elite (i.e., from local to national competitions within the current sports season) or elite (i.e., from national to international competitions within the current sports season) levels. Student-athletes competing at lower levels than the above reported were not included in the experimental sample.

Data Analysis

To verify the applicability of the four-factor model of the SAMSAQ-IT/A [23] for Italian university student-athletes attending different university courses, an Exploratory Factor Aanalysis (e.g., EFA; Principal Component Extraction; Varimax Rotation with Kaiser's normalization) was performed in two main stages: i) the initial testing of the proposed four-factor model of the SAMSAQ-IT/A version, which was validated on Italian student-athletes' exclusively enrolled in movement and sport science courses [23]; ii) in case the four-factor model was not confirmed, the testing of different solutions (e.g., three-factorial or two-factorial models) was planned. In line to the literature [27], the EFA was applied according to the following criteria: i) if an item loaded on a single factor, only values ≥0.40 were taken into account; and ii) if an item loaded on two factors, a 0.32 threshold of acceptability was set for both values. Furthermore, a subject to item ratio ≥10:1 was established as appropriate for EFA interpretation [27].

To evaluate the internal consistency of each SAMSAQ-IT/A subscale, reliability estimates (Cronbach's alpha coefficients) were computed, considering a Cronbach's alpha coefficient ≥0.7 acceptable for internal consistency [28].

To evaluate the fit of the factorial structure emerged with the EFA, a Confirmatory Factor Analysis (e.g., CFA; Maximum-Likelihood) was applied, considering the following eight fit indexes [29] including chi-square, chi-square ratio (χ^2/df), three incremental indexes (Comparative Fit Index (CFI); Normed Fit Index (NFI); Tucker-Lewis Index (TLI), Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), and *P* of close fit. According to the literature

[30, 31], cut-off values for good fit were considered: ≤0.05 for RMSEA with not significant *P* of close fit (*P*>0.05), ≥0.95 for incremental indices, ≥0.91for GFI, and ≥2 for chi-square ratio.

Gender (i.e., female, male), type of discipline (i.e., individual sport, team sport), competition levels (i.e., sub elite, elite); educational area (economical/law, humanistic, mathematics/engineering, medical, movement/sport sciences), and year of attendance (i.e., Bachelor 1st, 2nd, 3rd year, Master degree 1st and 2nd year, off course) were considered independent variables to provide a detailed scenario of the Italian university student-athletes' motivations.

Items loading on two factors were considered in calculating scores for both factors [11]. All data related to the above mentioned independent variables were classified according to the sum of the motivation scores (i.e., SMS) related to each SAMSAQ-IT/A factor, and to the percentage score (i.e., SMS%) based on the following formula: SMS X 100 / (number of items related to the SAMSAQ-IT/A factor X 6, which is the highest score for each item). Eventual differences between the SMS values related to each factor appertaining to student-athletes of different gender, types of discipline, competition level, educational area, and year of attendance categories were calculated by means of separate Kruskal and Wallis tests. Then, in case of differences in relation to independent variables consisting of more than two subgroups (e.g., type of sport, year of attendance), separate Mann-Whitney U tests were performed. Finally, to provide a meaningful analysis for comparisons from small groups, the *phi* effect sizes (ES) between groups were also calculated, considering 0.1, 0.3, 0.5 as small, medium, and large effect sizes, respectively [32]. Statistical analyses were conducted using SPSS (21.0; SPSS, Inc., Chicago, IL) and AMOS™ 21.0, and the criterion for significance was set at P≤0.05.

Results

Six-hundred-sixteen (22±1 yrs; 18 yrs old, n=1, 19 yrs old, n=23, 20 yrs old, n=126, 21 yrs old, n=140, 22 yrs old, n=117, 23 yrs old, n=103, 24 yrs old, n=97) Italian student-athletes of the University of Torino met the inclusion criteria and volunteered for the study (table I).

Insert Table I near here

For the present sample of Italian university student-athletes enrolled in different university courses, EFA showed the three-factor model (table II) as the most appropriate (explained variance=54%; subject to item ratio=20.53). In particular, this factorial structure (i.e., Sport Motivation, SM, 16 items; Academic Motivation, AM, 7 items; Career Motivation, CM, 18) reported satisfactory alpha coefficients for all three subscales. Nevertheless, four three (i.e., 12, 30) were removed due to low threshold of acceptability.

Insert Table II near here

In general, CFA indexes were found satisfactory with respect to the cut-off criteria (GFI=0.93, NFI=0.96, TLI=0.95, CFI=0.96, RMSEA=0.045, *P* of close fit=0.96), with a significant chi-square (610.628; *P*=0.001), and a 2.24 ratio between the hypothesized model and the sample data.

In table III, means, standard deviations, and effects of SMS values, and the percentage scores (SMS%), were reported in relation to gender, type of sport, competition level, educational area, and year of attendance, as well as to each considered SAMSAQ-IT/A factors, showing effects of SMS scores for all observed variables. In particular, for gender, female student-athletes reported higher AM scores than male (*P*=0.08, ES=0.1). For the type of sport, no difference emerged between individual, team, and individual and team sports. For competition level, differences emerged because elite student-athletes reported higher SMS scores than sub-elite ones both for SM (*P*<0.001, ES=0.3) and CM (*P*=0.017, ES=0.1) factors. For educational area, differences emerged for all factors. In particular, for SM (*P*=0.011, ES range=0.2), differences were reported between student-athletes attending movement/sport university paths with respect to those of other educational areas (economical/law: *P*<0.001, ES=0.2; humanistic: *P*=0.023, ES=0.2; mathematics/engineering: *P*=0.039, ES=0.2; medical: *P*=0.004, ES=0.2). For AM (*P*=0.001, ES

range=0.1-0.2), effects emerged between student-athletes enrolled in economical/law and humanistic (P=0.005, ES=0.1), medical (P<0.001, ES=0.2), and movement/sport (P=0.002, ES=0.2) educational areas. Finally, for CM (P=0.005, ES range=0.1-0.3), differences emerged between student-athletes enrolled in the economical/law educational area with respect to those of medical (P=0.005, ES=0.1), movement/sport (P<0.001, ES=0.3), and mathematics/engineering (P=0.011, ES=0.1) counterparts.

Regarding year of attendance, differences emerged for AM (P<0.001, ES range=0.2-0.4) due to lower scores accounted for "off course" student-athletes with respect to their Bachelor 1st year (P=0.005, ES=0.3) and Master 1st (P<0.001, ES=0.4) and 2nd years (P=0.016, ES=0.3) counterparts, as well as higher scores of Master 1st year with respect to those of Bachelor 2nd (P<0.001, ES=0.3) and 3rd years (P=0.001, ES=0.3), and Master 1st year (P=0.016, ES=0.2).

Insert Table III near here

Discussion

This study represents the first approach to investigate the motivation towards dual career in Italian student-athletes enrolled in different university courses, showing a valid and reliable SAMSAQ-IT/A model, suitable for this particular population, including sport, academic and career motivation subscales. However, the first hypothesis related to an expected equality between the current model and the one validated in student-athletes enrolled in Sport Science degree courses [22] can be rejected. In addition, the second hypothesis for which motivation can be influenced by the observed variables (i.e., gender, competition level, type of sport, educational area, and year of attendance) can be partially confirmed because motivation levels toward dual-career resulted influenced by each one with exception of type of sport variable.

Concerning the first hypothesis, the SAMSAQ-IT/A administered to Italian student-athletes enrolled in a variety of university courses reported a different model (three factors) with respect to

that (four factors) of Italian student-athletes exclusively attending Sport Science degree courses [23]. In particular, SM and AM are maintained in both models, also in accordance with the factor structure emerged in previous studies [10, 11, 22, 23, 25]. Conversely, in the study of Guidotti and Capranica [23], which adopted for the first time a harmonized version of the SAMSAQ for Italian student-athletes (SAMSAQ-IT/A) the career motivation consisted of two subscales, differentiating the motivation toward a sport career as an athlete (CMA) and the one as a sport operator (CMSO). This result could be explained by the characteristics of the investigated sample (e.g., Sport Science student-athletes), which could be motivated toward a sport career not only through the sport practice but also in considering their academic enrolment. Differently, in the present analysis the career motivation subscale represents a wider career prospect, in which sport and academic/work career aspects are jointly.

Comparing the factorial structure of the present study with that of the previous SAMSAQ-IT/A model [23], 6 full, 14 partial, and 10 no correspondences emerged. In particular, the main finding is that all the items loaded in the CMA (item 8, 20, 22, 27) in the study of Guidotti and Capranica [23] did not pertain to the career motivation sphere in the present study, loading to the SM factor. This result suggests that athletic achievements are related to the current sport motivational sphere, being an athletic career limited in time with respect to the life course. Conversely, the CM subscale emerging in the present study included items related to academic (item 22) and sport (items 3-7, 10, 24, 28, 29) career aspects, whereas others are related to specific academic (items 4, 5, 11) and sport (items 9, 13, 15, 17, 19, 26) aspects. In fact, efforts required for the academic training and achievements are foreseen to be fundamental to increase the possibilities of future employment. This result is also substantiated by the limited item factor loading solely on the AM factor (item 1 only), suggesting that the outcomes of the academic path are perceived to be strongly connected with the future career development and prospects. Furthermore, the commitment toward sports performance is perceived to be crucial for current (i.e., as an athlete) and future (i.e., general) career development. This result is in line with previous literature [33–35] reporting the

crucial role of non-formal and informal learning within the sport environment, which has been proved to contribute to the development of life skills and capacities that could be relevant for future workers. In particular, non-formal learning encompasses capabilities acquired through different types of educational providers (e.g., public and private, in and outside the formal education system), whereas informal learning is represented by daily activities/experiences [36, 37]. Actually, independently from the formal learning process provided by an academic path, through their sports involvement athletes develop several life skills (e.g., goal-setting, emotional control, self-esteem, self-knowledge, problem solving, goal attainment, teamwork, skill development, and a hard work ethic), which could support them in achieving specific working/educational goals [33–35]. To summarize, these results substantiated the validity of the SAMSAQ-IT/A as a psychometric tool to investigate student-athletes' dual career motivations. However, confirming previous literature [10, 20, 22, 23, 25, 26], social-cultural systems are crucial in influencing the factor structure of the instrument, determining different models suitable for different student-athletes populations.

Independently of the national social and policy supports for dual career, Italian student-athletes' sport, academic and career motivational scores resulted quite similar to those of American [11], United Arab Emirates [10], and other European [25] student-athletes. In particular, similarities emerged with the latter study, where higher, intermediate, and lower values were reported for CM, SM, and AM scores, respectively. Nevertheless, despite only Italian student-athletes were recruited in the present study, differences emerged for all observed variables (i.e., gender, competition level, type of sport, educational area, and year of attendance).

In considering the reduced opportunities to pursue professional athletic careers [38–42], female student-athletes were expected to have higher academic motivation and lower career athletic motivation scores [11, 19]. Although in the previous studies on SAMSAQ [10, 11, 22, 23, 25, 26] no difference emerged in relation to gender for any factors, the findings of the present study seems to confirm the above mentioned expectations. In fact, female Italian student-athletes reported higher AM scores with respect to their males counterparts, suggesting that the general Italian development

of women's sport is not able to minimize the gender effect in sports. Therefore, examining issues about the relationship between motivation and student-athletes appears as highly necessity.

In line to previous studies [22, 23, 25], no effect emerged between student-athletes performing heterogeneous type of sports. Therefore, this result confirms that the training and competition schedules of different sports are not characterized by dissimilar degrees of flexibility, allowing a better or worst optimization of time to study. Nevertheless, a previous study focused on the Italian and Slovenian motivation [26] highlighted the opposite picture, and speculated that Italian sport system is strongly relies on military sport organisation which mainly supports athletes involved in individual sports, determining a reduction of AM level for the latter subjects. In particular, in that study [26], it was highlighted to explain the higher AM of the student-athletes practicing team sports that, despite these disciplines are the most practised in Italy and also include a professional level [43], players can only rely on financial support during their competitive life, thus perceiving a degree as vital to ensure their future career.

In terms of competition levels, as expected, SM factor showed the most solid finding in relation to both level of significance and ES value, highlighting that student-athletes' competing at elite level demonstrated to be plainly more motivated towards sport than sub-elite counterparts (SMS% differences=9%). Although this result was expected and totally coherent to previous studies [22, 23, 25], the higher elite student-athletes' CM with respect to that of sub-elite counterparts is quite surprising, despite already reported in a couple of previous studies [22, 25]. According to Lupo et al. [25] it could be speculated that European student-athletes living in countries lacking dual career structures (e.g., as Italy) would show a high career motivation as reaction to the limited policy actions/interventions toward a sustainable combination of elite sports and education, as well as a smooth transition from sport to the labor market.

For the year of attendance variable, differences emerged only for AM, where out of course student-athletes resulted less motivated than others attending the first year of Bachelor and Master degree, and the second year of Master degree, speculating that the latter subjects are mainly focused

on studying with a point of view orientated to future prospective related to career with respect the counterparts, who are "out of course" probably for a inability to effectively develop both sport and academic tasks, only privileging the sport tasks. In particular, among these, the student-athletes attending the first year of Master degree resulted as the most academically motivated, probably because of the strong decision to improve their educational curriculum after the obtaining of the Bachelor degree.

As already remarked, this study represents the first approach to investigate student-athletes' motivations also in relation to the enrolment in different educational degree courses. As expected, the highest SM emerged for student-athletes enrolled into the sport science area with respect to all the other educational domains (SMS% differences=5-7%), highlighting a higher motivational predilection both towards the study and the practice of sport. Considering AM and CM, the economical/law student-athletes reported the lowest scores. This result could mirror the Italian occupational trends [14], which accounted the lowest employment rate for the economical/law (34%) compared to the humanistic, medical, movement/sport sciences, and engineering areas (from a minimum of 57% to a maximum of 96%). Thus, better career prospects could determine higher motivations toward academic commitments and career developments, whereas higher unemployment expectations could determine the opposite trend.

Although the present study has the merit to have recruited Italian student-athletes from different educational areas, the involvement of only one university could represent a limitation. Furthermore, an unbalanced recruitment of participants in relation to type of sport (limited "individual and team" subgroup), competition level (mostly sub elite student-athletes), educational path (limited "movement and sport science" subgroup), and year of attendance (limited "out of course" subgroup) could limit the generalization of findings. Nevertheless, differently from previous studies on European [25] and Italian [22, 23, 26] student-athletes' motivations, the good subject to item ratio emerged for the present study (ratio: 20.5) represents a crucial aspect for the statistical interpretation [27, 29], minimizing the risk of item misclassification and errors.

Therefore, this study could represent an important step to better understand the Italian student-athletes objectives and difficulties in combining sport and academic tasks, in line with the proposals of the EU Guidelines on Dual-careers [16]. In line to the present work, future studies focused on the use of the SAMSAQ-IT/A tool are strongly encouraged with the recommendations of: i) maintaining a high number of participants coming from heterogeneous educational paths; ii) supporting the involvement of universities situated in different region of Italy (i.e., North, Centre, South); and iii) balancing the distribution of participants in the experimental subgroups.

Conclusions

The findings of the present study indicate that the motivations of Italian student-athletes enrolled in different educational areas have to be investigated by means of a valid and reliable psychometric tool, suitable for the target cultural context [23]. In fact, previous studies highlighted that the translated version of SAMSAQ was not satisfactory to adequately analyse sport and academic motivations of Italian [22] and United Arab Emirates [10] student-athletes. In addition, in higher education, the differences of policy supports toward the dual career of European elite athletes determined several discrepancies in the various SAMSAQ models [25], which were also substantiated when countries appertaining to the same policy category were considered [26]. Finally, in the present study a different factor structure emerged with respect to that validated on a more homogeneous student-athletes sample [23].

Although constructive prospective and considerations about dual career motivations of talented and elite student-athletes could be implemented by further research, the huge scenario emerged about Italian student-athletes in this study could represents the first step for political proposals which are able to concretely support dual career. In particular, the findings related to competition level (high motivation in elite athletes) and year of attendance (high motivation in “in course” students) could be rationally considered as useful criteria of selection to recruit the best motivated student-athletes and offer effective educational processes in supporting of dual career. Practically, interventions such as e-learning and tutoring programs, as well as individualized lecture

and exam schedules, could represent the best solutions for combining dual career of the most motivated student-athletes, which could substantially benefit by these educational policies.

Therefore, in conclusion, it can be assumed that the present and previous studies on student-athletes' motivations provide progresses on the knowledge of the Italian dual career scenario, and encouragements of coherent practical interventions which will have to be monitored in terms of effectiveness.

Conflict of interest: The authors declare that they have no conflict of interest.

Ethical approval: "All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

Informed consent: "Informed consent was obtained from all individual participants included in the study."

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